10. 5-YEAR REVIEWS

At sites where institutional controls are required, a review will be conducted every 5 years after the first remedial action is completed to ensure protectiveness to human health and the environment and to assess the need for future long-term environmental monitoring and administrative/institutional controls. These comprehensive statutory 5-year reviews will be conducted to evaluate factors such as contaminant migration from those sites, effectiveness of institutional controls, and overall effectiveness of the remedial actions, which will be outlined in the institutional control plan.

The possibility exists that contaminated environmental media not identified by the INEEL FFA/CO or in this comprehensive investigation will be discovered in the future as a result of routine operations, maintenance activities, D&D activities, and review of previous D&D actions at TAN. New sites will be addressed using the process for new site inclusion as defined in the FFA/CO and will be assessed and remediated pursuant to the process agreed upon by the agencies at the time of the new site identification. Where appropriate, the RAOs and FRGs identified in this ROD will be used to complete potential cleanup activities. Upon discovery of a new site the Agencies will determine the appropriate response action to be taken in accordance with the FFA/CO and this ROD.

11. DOCUMENTATION OF SIGNIFICANT CHANGES

The CERCLA Section 117(b) requires an explanation of changes from the preferred alternatives originally presented in the Proposed Plan to be provided in this ROD.

11.1 Preferred Alternative Changes from the RI/FS to Proposed Plan

A Proposed Plan describing the results of the comprehensive RI/FS was released in February 1998 to identify the Agencies' preferred alternative for the eight sites and the Mercury Spill Area. Public comments received on the Proposed Plan (including a recommendation from the INEEL CAB) raised concerns about the readability, organization, and clarity of the Proposed Plan as well as several technical questions. In response to the comments, the feasibility study and Proposed Plan, were reexamined to address the technical questions and improve readability. A revised Proposed Plan and an OU 1-10 FS Supplement were issued in November 1998.

The FS Supplement addressed several technical issues, reevaluated potential remedies, and developed additional alternatives. The additional remedies developed represent either new technologies or modifications to technologies, or reevaluations of existing technologies based on new information. Sites at which additional supplementary work was carried out included the PM-2A Tanks (TSF-26), the Burn Pits (TSF-03 and WRRTF-01), and the Fuel Leak (WRRTF-13).

At five sites, the PM-2A Tanks, the two Burn Pits, the Mercury Spill Area, and the Fuel Leak, the preferred alternatives were changed from the originally proposed alternatives in February 1998. The changes are described below.

11.1.1 PM-2A Tanks (TSF-26)

The February 1998 Proposed Plan specified the preferred alternative as Alternative 4a – Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal. The Agencies determined through additional evaluation that the preferred alternative of In Situ Stabilization would be difficult to implement and would not be cost-effective. In addition, hazardous waste constituents in the tank sludge may require disposal in a disposal facility approved to accept RCRA waste. The Agencies subsequently changed the preferred alternative to Alternative 3d – Soil Excavation, Tank Content Removal, Treatment, if required, and On-Site Disposal. This change was presented to the public in the Revised (November 1998) Proposed Plan and is the Agencies' selected remedy for the site.

11.1.2 Burn Pits (TSF-03 and WRRTF-01)

The February 1998 Proposed Plan identified the preferred alternative for the Burn Pits as Alternative 1 – Limited Action. Reanalysis of the existing data showed that the previously preferred alternative would not meet the goal for overall protectiveness after 100 years was uncertain. The Agencies subsequently changed the preferred alternative to Alternative 2 – Native Soil Cover with the contingency of implementing Alternative 3 if the cover design would not be cost effective. This change was presented to the public in the Revised (November 1998) Proposed Plan and is the Agencies' selected remedy for the site.

11.1.3 Mercury Spill Area (TSF-08)

The February 1998 Proposed Plan identified the preferred alternative for the Mercury Spill Area as Alternative 3 – Excavation and Off-Site Disposal. The Agencies subsequently determined that a

treatability study will be conducted at this site to evaluate plant uptake factors and rates for phytoremediation. Based on the results of this study, planned to be conducted under WAG 10, a determination will be made as to subsequent action, if required. If remedial action is required at this site, the action will be performed and documented, as necessary. The Agencies will determine the appropriate response action to be taken in accordance with the FFA/CO and this ROD. This change was presented to the public in the Revised (November 1998) Proposed Plan and is discussed in Part II, Sections 1 and 4 of this ROD.

11.1.4 Fuel Leak (WRRTF-13)

The February 1998 Proposed Plan specified the preferred alternative as Alternative 1 – Limited Action. Comments were received that indicated that in situ bioremediation techniques could be more appropriate for this site. In addition, the Agencies determined that the quantities and types of contamination had not been fully assessed based on the new State of Idaho RBCA Guidance. The Agencies subsequently changed the preferred alternative to Alternative 4 – Excavation and Land Farming. This change was presented to the public in the Revised (November 1998) Proposed Plan and is the Agencies' selected remedy for the site.

In compliance with statutory requirements to ensure the public has the opportunity to comment on major remedy selection decisions, a revised Proposed Plan (DOE-ID 1988a) was prepared presenting the new preferred alternatives. The revised Proposed Plan was made available to the public in November 1998. Responses to public comments on both the initial and revised Proposed Plans are included in the Responsiveness Summary portion of this ROD (Part III).

11.2 Changes to the V-Tanks (TSF-09 and TSF-18) Preferred Alternative

Since the RI/FS Report was prepared, and the Proposed Plan being reissued, it was determined that several important assumptions regarding in situ vitrification (ISV) of the V-Tanks were no longer appropriate. In addition, new information was obtained from an ISV vendor, regarding costs for design support, site preparation, equipment procurement and mobilization, and vitrification operations. Consequently, a revised cost estimate was prepared that would more accurately reflect the cost for implementing the ISV alternative for the V-Tanks. The changes and assumptions are listed below:

1. It was stated in the RI/FS that V-Tanks waste would be delisted after treatment and a no-longer-contained-in determination obtained for the surrounding vitrified soils. Therefore, the waste and soils after treatment would be radioactive waste only and not subject to any RCRA landfill closure requirements. Hence the original cost estimate did not provide for a RCRA compliant cover or monitoring for any RCRA constituents. After negotiations on ARARs for the V-Tanks, the Agencies agreed that delisting will not be pursued and a cover would be constructed and maintained as specified in 40 CFR 264.310. Costs for constructing and maintaining a cover and installing and operating a monitoring system were not included in the original cost estimate. The revised cost estimate for Alternative 4 includes construction of a small soil cap over the tank site with 100 years of monitoring and maintenance.

2. During preparation of the FS, it was assumed the buildings adjacent to the tank site would have been removed and that the piping associated with the tank system cut and capped by the D&D program. It is now known that the adjacent buildings would be in place and occupied at the time ISV is performed. Because of the proximity of the buildings to the tank

site, it would be necessary to protect the foundations with a thermal shield before ISV. Costs for isolating the tank system for ISV and installing the heat shield were not included in the original cost estimate. These costs are included in the revised estimate.

3. In the FS, it is assumed that 1,372 m^3 (1,500 yd^3) of contaminated soil requires remediation. During ISV of the tanks using the planar melt method, only the soils immediately surrounding the tanks would be vitrified. In order to treat the soils above the tanks, it would be necessary to perform a top-down melt after the tanks are vitrified. Removal and disposal of the contaminated soil was not considered in the ISV alternative and the original cost estimate did not include a cost for performing a top down melt. The revised cost estimate provides for a top down melt to be performed after the tanks are vitrified, which would leave about 594 m^3 (650 yd^3) of contaminated soil untreated to be excavated and disposed at an approved facility, such as the proposed INEEL soil repository.

4. Secondary waste would be generated during ISV of the tanks. The original cost estimate did not account for treatment and disposal of secondary waste generated. For the revised cost estimate, treatment and disposal of secondary waste was included.

5. The original cost estimate included funding to perform a cold-test demonstration of ISV on a tank. Since the treatability study was considered to be successful, no further cold testing is required. This cost was eliminated from the revised cost estimate.

6. An ISV vendor provided a list of cost assumptions for performing ISV of the V-Tanks in the *Treatability Study For Planar In Situ Vitrification of INEEL Test Area North V-Tanks* (INEEL 1998b). These assumptions clarified the responsibilities of the vendor and DOE contractor. Adjustments to the cost estimate were made to reflect the tasks to be performed by the vendor, contractor, and subcontractors and the materials to be provided.

Since the revised Proposed Plan was issued, three key issues have been raised: (1) addition of LDRs, RCRA closure, postclosure and institutional controls as ARARs, (2) results of the ISV treatability study, which provided new specifications for the remedial action, and (3) the cost estimate for Alternative 4 (ISV) increased by approximately 50% due to several different factors and changes to initial FS assumptions as mentioned earlier. In addition, options for Ex Situ Treatment of the V-Tank contents have become available, thus making Alternative 2, Soil Tank Removal, Ex Situ Treatment of Tank Contents, and Disposal, a more implementable alternative. An advantage of removing the contaminated media above the FRG is this would eliminate the need for RCRA closure and post closure care at the site (potentially releasing the land for unrestricted land use), which would result in significant cost savings Based on these key issues and the changes to the ISV assumptions as mentioned earlier, the ex situ treatment options were re-evaluated and the cost re-estimated. The implementability of ex situ treatment is now consideredmoderate, and is also more cost-effective than ISV. Hence Alternative 2, Soil Tank Removal, Ex situ Treatment of Tank Contents, and Disposal, is the Agencies selected remedy for the V-Tanks site. Since LDRs will be an ARAR for the V-Tanks, Alternative 3 as outlined in the Proposed Plan will not meet this ARAR.

11.3 Additional Changes

The following changes, although not "significant," are discussed below to accurately reflect modifications made from the revised Proposed Plan to the ROD.

The RAO identified in the revised Proposed Plan for the Fuel Leak site was: "Prevent direct exposure to total petroleum hydrocarbon constituents at concentrations over 1,000 mg/kg, in accordance with the State of Idaho RBCA Guidance." The 1,000 mg/kg TPH concentrations was incorrectly referenced to the State of Idaho RBCA Guidance when in fact the 1,000 mg/kg total petroleum hydrocarbon concentrations is from the Idaho UST Information Series: #2. The RAO has been changed in this ROD to "Prevent exposure to petroleum hydrocarbon constituents in accordance with the State of Idaho Risk-Based Corrective Action Guidance." This change is described in Part II, Sections 6.4.1 and 9.2.2 of this ROD.

The RAO identified in the revised Proposed Plan for the V-Tank and PM-2A Tank contents was to prevent release to the environment of COCs from the V-Tank and PM-2A Tank contents. Since the V-Tank and PM-2A Tank contents never had a risk assessment performed, there are no COCs for this waste. Therefore, the revised RAO is to prevent release to the environment of the V-Tank and PM-2A Tank contents.

The selected remedies for the V-Tanks, PM-2A Tanks, and the Soil Contamination Area South of the Turntable uses excavation and disposal as part of the remedy. If the on-Site option is not available at the time of the remedial action, contaminated material may be disposed of at an off-Site facility. At the time of the remedial action, a cost comparison will be performed to determine whether on-Site or off-Site disposal is most economic. The cost estimates presented in this ROD only take into account on-Site disposal. The discussion of the selected remedies were clarified to specify that contaminated material may be disposed at an off-Site disposal facility.

The cost estimates, given in Tables 7-2, 7-5, 8-2, 8-5, 9-1, and 9-4 of this ROD, present cost estimates that are lower than those in the RI/FS and the Proposed Plans for the selected remedy. The reason for the lower cost estimates is the application of an "economy of scale" method to estimate the costs. Rather than estimating each site's costs individually (as was done in the RI/FS and Proposed Plans), the revised cost estimates group the sites and combine select work elements such as management and document preparation. Cost estimates were not prepared for the RI/FS and Proposed Plans for the "No Further Action" sites and the disposition of IDW. Cost estimates were prepared between the release of the November Proposed Plan and the finalization of this ROD, and are presented in Section 12, Tables 12-3 and 12-4.

Sites IET-04, TSF-10, TSF-28, TSF-29, TSF-42, and TSF-43 were identified as "No Action" sites in the WAG 1 Proposed Plan. Also, TSF-39 was identified as a "No Action" site in the Final 1-07B ROD. These sites are now classified as "No Further Action" because of new guidance from EPA Region 10 (EPA 1999), and will require institutional controls as described in Section 12 as a best management practice. Calculation of current residential risk, given for some sites in Table 12-1, was performed using the future residential risk from the BRA and back calculating the current residential risk based on radioactive decay.